REMARKS

Reconsideration of the pending application is respectfully requested on the basis of the following particulars.

1. Priority

A translator's statement of verification is submitted herewith along with a true and correct English language translation of the German priority document No. 199 40 341.4, dated August 25, 1999.

2. In the specification

The specification is amended to include section headings and to remove reference to the claims. These changes correct minor informalities pointed out in the Office Action dated October 18, 2005 and no new matter is added.

Entry of the amendment to the specification is respectfully requested in the next Office communication.

3. In the claims

As shown in the foregoing amendment to the claims, the claims have been amended to more clearly point out the subject matter for which protection is sought. In particular, the independent claim 1 has been amended to provide more clarity, support for which is clearly found on page 15, lines 13-17 of the accompanying description in the specification.

Claims 1 and 26 are amended to overcome the claim objections in the Office Action dated October 18, 2005.

Claim 11 has been amended overcome the 35 U.S.C. § 112, second paragraph rejection of claim 26 in the Office Action dated October 18, 2005.

Claim 13 has been amended to provide proper antecedent basis.

Claim 20 has been amended to overcome the 35 U.S.C. § 101 rejection in the Office Action dated October 18, 2005.

Entry of the amendment of the claims is respectfully requested in the next Office communication.

A. Claims 1-19

Claim 1 is amended to more clearly recite "obtaining a decrypted code word" and recovering secret data "from the decrypted" code word.

Claims 2-10 are left unchanged.

Claim 11 is amended to recite that the public and secret part are "separated."

Claim 13 has been amended to depend from claim 2 in order to provide proper antecedent basis for "the digitized biometric feature data."

B. Claims 20-26

Claim 20 has been amended to recite an apparatus for "protecting data", and to include that "an encrypted code word is decrypted on the basis of the digitized biometric feature data, thereby obtaining a decrypted code word and; whereby the secret data is recovered from the decrypted code word on the basis of a coding theory method with a freely selectable correction capacity." Reference to claim 1 has been removed.

Claims 21-25 are left unchanged.

Claim 26 has been amended to depend from claim 20.

4. Objections to claims 1-19 and 26

Claims 1 and 26 have been amended, as discussed above, to overcome the claim objections in the Office Action dated October 18, 2005.

Withdrawal of this objection is respectfully requested.

5. Rejections of claims 12 and 19 under 35 U.S.C. § 112, second paragraph

Claim 11 has been amended, as discussed above, to provide proper antecedent basis for "the separation" in claim 12.

The recitation in claim 19, "the secret data", has proper antecedent basis in claim 1. Claim 1 recites "recovering secret data" in line 8. Therefore, claim 19 does not need to be amended to provide proper antecedent basis for "the secret data."

Withdrawal of this rejection is respectfully requested.

6. Rejection of claims 20-26 under 35 U.S.C. § 101

Claim 20 has been amended to recite an apparatus for "protecting data", and to include that "an encrypted code word is decrypted on the basis of the digitized biometric feature data, thereby obtaining a decrypted code word and; whereby the secret data is recovered from the decrypted code word on the basis of a coding theory method with a freely selectable correction capacity." Reference to claim 1 has been removed in order to eliminate the overlap of statutory classes of invention.

Withdrawal of this rejection is respectfully requested.

7. Rejection of claims 1-3, 5-7, 10-21 and 23-26 under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent publication no. 2002/0124176 (Epstein) in view of U.S. patent 6,279,133 (Vafai et al.)

A. Neither the Epstein application, nor the Vafai et al. patent, disclose every limitation of pending claims 1-3, 5-7, 10-21 and 23-26.

This rejection is respectfully traversed, in view of the amendments to claims 1 and 20, on the basis that the rejection fails to establish a *prima facie* case of obviousness because neither the Epstein application, nor the Vafai et al. patent, disclose every limitation of pending claims 1-3, 5-7, 10-21 and 23-26.

With regards to claims 1 and 20, the recited elements require that the encrypted code word is decrypted on the basis of the digitized biometric authentication feature data, thereby knowingly introducing errors in the decrypted

code word by applying a digitized representation of a biometric feature that is different from the digital representation of the biometric feature used for encryption. The secret data is recovered on the basis of a coding-theory method with freely selectable correction capacity only after the errors are knowingly introduced into the decrypted code word.

Neither the Epstein application, nor the Vafai et al. patent, disclose decrypting an encrypted code word on the basis of digitized biometric authentication feature data in order to obtain a decrypted code word so that secret data can be recovered from the decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20.

The Epstein application does not disclose that the secret data can be recovered from the decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20. The Epstein application discloses decrypting a response and such response matching an original random number only if the response is encrypted using the private key that corresponds to the public key of the authorized user. (Paragraph [0022]). The Epstein application further discloses that if different biometrics are provided, the decrypted result will not match the original random number and access will not be granted. (Paragraph [0023]).

The Vafai et al. patent does not disclose that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20. The Vafai et al. patent discloses a method of error correcting input data from an MLT memory to obtain a corrected result. (Col. 10, lines 50-64). This method of error correction is applied to MLT input data which is encoded with redundant information prior to writing to memory. (Col. 6, lines 40-44). The redundant information stored is not secret information, it is simply redundant information based upon the input data, used to eliminate errors in read and write operations. (Col. 6, lines 40-47).

Since neither the Epstein application, nor the Vafai et al. patent, disclose that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by claims 1 and 20, a *prima facie* case of obviousness cannot be sustained.

B. Neither the Epstein application, nor the Vafai et al. patent, provide any suggestion or motivation to combine.

Reconsideration of this rejection is respectfully requested in view of the amendments to claims 1 and 20, on the basis that the rejection fails to establish a *prima facie* case of obviousness because neither the Epstein application, nor the Vafai et al. patent, provide any suggestion or motivation to combine the references so that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20.

The Epstein application does not disclose or suggest any motivation to provide the missing step that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20.

The apparatus in the Epstein application specifically relies on the differences in biometric data, and does not contemplate the problem that different readings of the same biometric feature will always differ from each other, at least when the resolution of the reading is above a certain level. This is evident in view that the Epstein application discloses an apparatus that uses biometric information for authentication and access control. (Abstract). The specific biometric information contemplated by the Epstein application includes "fingerprints, retina patterns, voice prints and the like." (Paragraph [0004]). The Epstein application further discloses that if different biometrics are provided, the decrypted result will not match the original random number and access will not be granted, in effect relying on differences in biometrics to discriminate between authorized and unauthorized users . (Paragraph [0023]).

From these teachings it is clear that there is no suggestion or motivation in the Epstein application to provide the step that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20, because the Epstein application deals with select biometric information, does not contemplate the problem that different readings of the same biometric feature will always differ from each other, and requires that access must be denied when different biometrics are provided.

The Vafai et al. patent does not make up for the shortcomings of the Epstein application in that it fails to disclose or suggest any motivation to provide the missing step, that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20.

There is no suggestion or motivation in the Vafai et al. patent to recover secret data, from a decrypted codeword that has errors knowingly introduced during the decryption, using a coding-theory method with freely selectable correction capacity, as is required by claims 1 and 20. The Vafai et al. patent is concerned only with improving the reliability of MLT memory architecture. (Abstract). Reliability is improved by encoding information with additional redundant digits, based upon the content of the information, prior to writing the information to the MLT. (Abstract). During the reading of the memory the redundant digits are used to correct and eliminate any errors introduced during the read and write operations. (Abstract). The apparatus in the Vafai et al. patent is solely concerned with data storage and retrieval, and the error correction process begins prior to the stage where information is written to the MLT. (Abstract).

In the pending claims, errors are knowingly introduced at an earlier step, while decrypting the code word, only to be corrected at a later step, during the recovery of the secret data. The problem of ensuring the integrity of data stored in MLT is vastly different from the problem encountered with the comparison of biometric feature data

with biometric feature encryption data. In ensuring the integrity of data stored in MLT, the error correction technique is implemented as early as possible, prior to writing the data to the MLT. There is no suggestion or motivation in the Vafai et al. patent for waiting to implement an error correction technique until the recovery of data step.

Since neither the Epstein application, nor the Vafai et al. patent, provide any suggestion or motivation that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by claims 1 and 20, a *prima facie* case of obviousness cannot be sustained.

C. There is no reasonable expectation of success for combining the Epstein application and the Vafai et al. patent.

Reconsideration is also respectfully requested, in view of the amendments to claims 1 and 20, on the basis that the rejection fails to establish a *prima facie* case of obviousness because there is no reasonable expectation of success for combining the Epstein application and the Vafai et al. patent to provide that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20.

The addition of the error correction techniques of the Vafia et al. patent to the Epstein application would not provide that secret data can be recovered from a decrypted codeword using a coding-theory method with freely selectable correction capacity, as is required by claims 1 and 20.

Since the error correction techniques in the Vafia et al. patent are commenced prior to writing data, the error correcting technique would need to be implemented prior to the encryption E(R, V) of the response. (Epstein application describes the encryption E(R, V), Paragraph [0016]). Then, according to the error correction techniques in the Vafia et al. patent, the additional redundant digits, added prior to the encryption E(R, V) of the response, would be used to decrypt the encryption E(R, V) of the response. (Vafai et al. patent describes this process in the Abstract and col. 9,

lines 42-54). This combination of the Epstein application and the Vafia et al. patent would not provide that secret data can be recovered from a decrypted codeword using a coding-theory method with freely selectable correction capacity, as is required by claims 1 and 20, since the combination of the Epstein application and the Vafia et al. patent would not knowingly introduce errors while decrypting the code word, only to be corrected during the recovery of the secret data.

Since there is no reasonable expectation of success for combining the Epstein application and the Vafai et al. patent to provide that secret data can be recovered from a decrypted code word using a coding-theory method with freely selectable correction capacity, as is required by pending claims 1 and 20, a *prima facie* case of obviousness cannot be sustained

D. Neither the Epstein application, nor the Vafai et al. patent, disclose every limitation of pending claims 15, 16 and 26.

With regards to claims 15, 16, and 26, this rejection is respectfully traversed, on the basis that the rejection fails to establish a *prima facie* case of obviousness because neither the Epstein application, nor the Vafai et al. patent, disclose every limitation of pending claims 15, 16 and 26.

Claims 15, 16 and 26 require the biometric feature to be a behavioral biometric, and more specifically in claims 16 and 26, that the behavioral biometric be a handwritten signature.

Neither the Epstein application, nor the Vafai et al. patent, disclose a behavioral biometric, specifically a handwritten signature, as is required by pending claims 15, 16 and 26.

The Epstein application discloses "biometric information, such as fingerprints, retina patterns, voice prints and the like." (Paragraph [0004]). None of the disclosed biometric information falls into the category of a behavioral biometric feature, nor specifically a handwritten signature. Each of the biometric features disclosed are not

behavioral, since the features are not learned, but inherent in the person. Therefore, the Epstein application does not disclose a behavioral biometric, specifically a handwritten signature, as is required by pending claims 15, 16 and 26.

The Vafai et al. patent does not cure the deficiency in the Epstein application, since the Vafai et al. patent does not deal at all with biometric features.

Since neither the Epstein application, nor the Vafai et al. patent, disclose a behavioral biometric, specifically a handwritten signature, as is required by pending claims 15, 16 and 26, a *prima facie* case of obviousness cannot be sustained.

E. Neither the Epstein application, nor the Vafai et al. patent, provide any suggestion or motivation to combine.

With regards to claims 15, 16, and 26, this rejection is respectfully traversed, on the basis that the rejection fails to establish a *prima facie* case of obviousness because there is no suggestion or motivation in either the Epstein application, nor the Vafai et al. patent, to provide a behavioral biometric feature, specifically a handwritten signature, as is required by pending claims 15, 16 and 26.

The Epstein application discloses "biometric information, such as fingerprints, retina patterns, voice prints and the like", but does not provide any suggestion or motivation to use behavioral biometric features, and specifically a handwritten signature. (Paragraph [0004]). The Epstein application specifically recites inherent biometric features because the apparatus of the Epstein application requires that the biometric information be invariable in order to function properly. (Epstein application, Paragraph [0023]). Since there is inherent variability in behavioral biometric features, and specifically a handwritten signature, the apparatus of the Epstein application would not function using behavioral biometric features, and specifically a handwritten signature.

Again the Vafai et al. patent does not deal at all with biometrics and does not provide any suggestion or motivation to use a behavioral biometric feature.

Since neither the Epstein application, nor the Vafai et al. patent, provide any suggestion or motivation to use behavioral biometric features, and specifically a handwritten signature, as is required by claims 15, 16 and 26, a *prima facie* case of obviousness cannot be sustained.

F. There is no reasonable expectation of success for combining the Epstein application and the Vafai et al. patent.

With regards to claims 15, 16, and 26, this rejection is respectfully traversed on the basis that the rejection fails to establish a *prima facie* case of obviousness because there is no reasonable expectation of success for combining the Epstein application and the Vafai et al. patent to provide for the use of a behavioral biometric feature, and specifically a handwritten signature., as is required by pending claims 15, 16 and 26.

As was previously discussed, the Epstein application requires that the biometric information be invariable in order to function properly. (Epstein application, Paragraph [0023]). The inherent variability in behavioral biometric features, and specifically a handwritten signature, would cause the apparatus of the Epstein application to deny access to the device, even when the user is an authorized user, if the user does not match the behavioral biometric feature exactly to the original biometric feature used to create the private key. Therefore, the apparatus of the Epstein application would not perform its function of allowing access to authorized users.

Again, since the Vafia et al. patent does not deal at all with biometric information, the Vafia et al. patent cannot help to cure the deficiency.

Since there is no reasonable expectation of success for combining the Epstein application and the Vafai et al. patent to provide for the use of a behavioral biometric feature, and specifically a handwritten signature, as is required by pending claims 15, 16 and 16, a *prima facie* case of obviousness cannot be sustained.

G. Summary

In view of these comments, it is submitted that neither the Epstein application, nor the Vafia et al. patent, disclose every limitation in claims 1-3, 5-7, 10-21, and 23-26. It is also submitted that neither the Epstein application, nor the Vafia et al. patent provide a suggestion or motivation to modify the Epstein application with the steps and structure of the Vafia et al. patent because such a modification would destroy the intended function of the Epstein application, which is to provide authorized users with consistent access to a system.

Withdrawal of this rejection is respectfully requested.

8. Rejection of claims 4, 8, 9 and 22 under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent publication no. 2002/0124176 (Epstein) in view of U.S. patent 6,279,133 (Vafai et al.), and further in view of U.S. patent 6,075,987 (Camp, Jr. et al.)

This rejection is respectfully traversed on the basis that the rejection fails to establish a *prima facie* case of obviousness because neither the Epstein application, nor the Vafai et al. patent, nor the Camp, Jr. et al. patent disclose every limitation of pending claims 4, 8, 9 and 22.

Pending claims 4, 8, 9 and 22 require that the code word be generated by a generating matrix. In addition to the deficiencies of the combination of the Epstein application and the Vafai et al. patent, as discussed above in section 7, neither the Epstein application, nor the Vafai et al. patent disclose the code word being generated by a generating matrix.

Neither does the Camp, Jr. et al. patent disclose the code word being generated by a generating matrix. The cited passage in the Camp, Jr. et al. patent, column 9, lines 9-23, does not disclose a code word being generated by a generating matrix. The cited passage in the Camp, Jr. et al. patent pertains to determining a user terminal location by multiplying an inverted direction unit vector matrix H by delta pseudo-

ranges. The fact that the Camp, Jr. et al. patent uses a matrix in a calculation to determine a user terminal location does not mean that the Camp, Jr. et al. patent discloses the code word being generated by a generating matrix.

Since none of the cited references disclose the code word being generated by a generating matrix, as is required by pending claims 4, 8, 9 and 22, a *prima facie* case of obviousness cannot be sustained.

Withdrawal of this rejection is respectfully requested.

9. Conclusion

As a result of the amendment to the claims, and further in view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is respectfully requested that every pending claim in the present application be allowed and the application be passed to issue.

If any issues remain that may be resolved by a telephone or facsimile communication with the applicants' attorney, the examiner is invited to contact the undersigned at the numbers shown below.

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